A 45-year-old woman presented with increasing dyspnoea and right-sided pleuritic chest pain 3 months post-catheter ablation for paroxysmal atrial fibrillation. A CT scan suggested that the right inferior pulmonary vein was completely occluded at the ostium. Transoesophageal echocardiography assessment of the right inferior pulmonary vein (RIPV on Panels A and B) identified a narrow turbulent colour flow jet confirming a patent, but severely stenotic vessel (Panel A, see Supplementary data online, Videos S1 and S2). The right superior pulmonary vein (RSPV on Panel B) had laminar colour flow and was widely patent on 2-D imaging (see Panel B).

Transfemoral arterial and venous access was obtained with 6F and 8F catheters. A Brokenbrough needle and SL1 Sheath were used to perform trans-septal puncture under 2-D and 3-D TEE guidance. 3-D imaging as well as fluoroscopy confirmed the position of an Agillis Sheath in the right lower pulmonary vein. Angiography confirmed a discrete severe stenosis of the right inferior pulmonary vein (Panel C). A 6 × 12 mm RX Herculink Elite Stent was successfully placed in the right inferior pulmonary vein (RIPV) with no procedural complications.

Colour flow Doppler prior to and after delivery of the stent demonstrated significant reduction in pulmonary vein gradient and a return to a normal phasic flow profile after relief of the obstruction (Panel D). 3-D imaging facilitated the assessment of stent placement with precise anatomical localization and confirmation of satisfactory deployment (Panels E and F, see Supplementary data online, Video S3).

3-D transoesophageal imaging is useful in confirming stent position and patency. Transoesophageal 3-D echocardiography is also useful for trans-septal puncture guidance and sheath position in the left atrium with respect to pulmonary vein engagement.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.